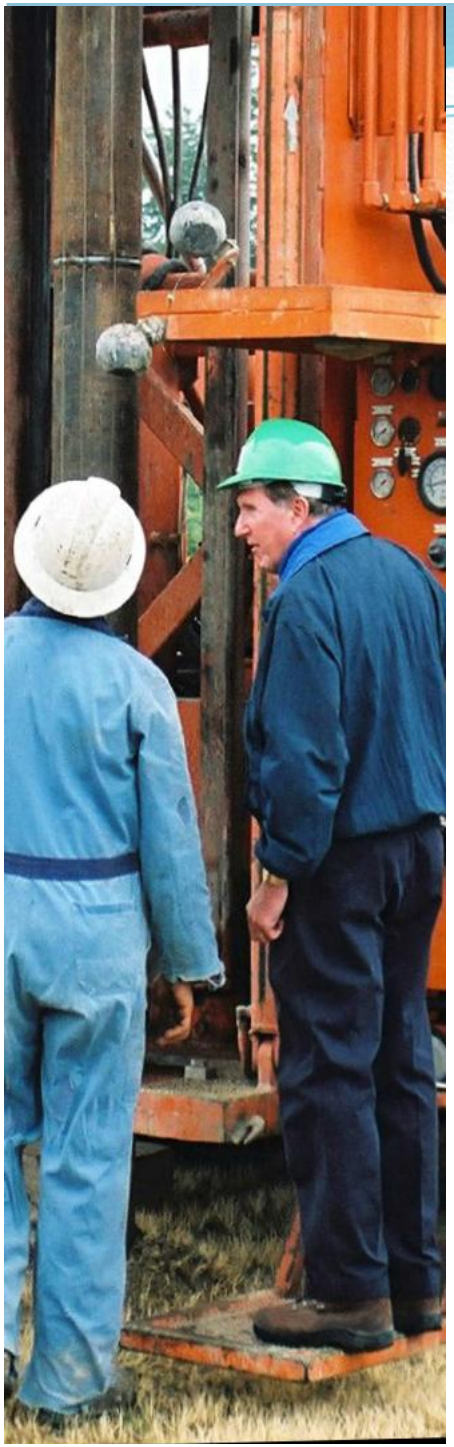
Update: Proposed changes to the Groundwater Protection Regulation (GWPR2)

BCGWA Regional Meetings
November 7-28, 2015

Outline - Proposed changes to the GWPR2

- Wells under the WSA
- Alternative Specifications
- Registration and qualifications for drillers and well pump installers
- Artesian Flow
- Well construction requirements
- Well pump standards
- Well maintenance requirements
- Well deactivating and decommissioning
- Well reporting requirements

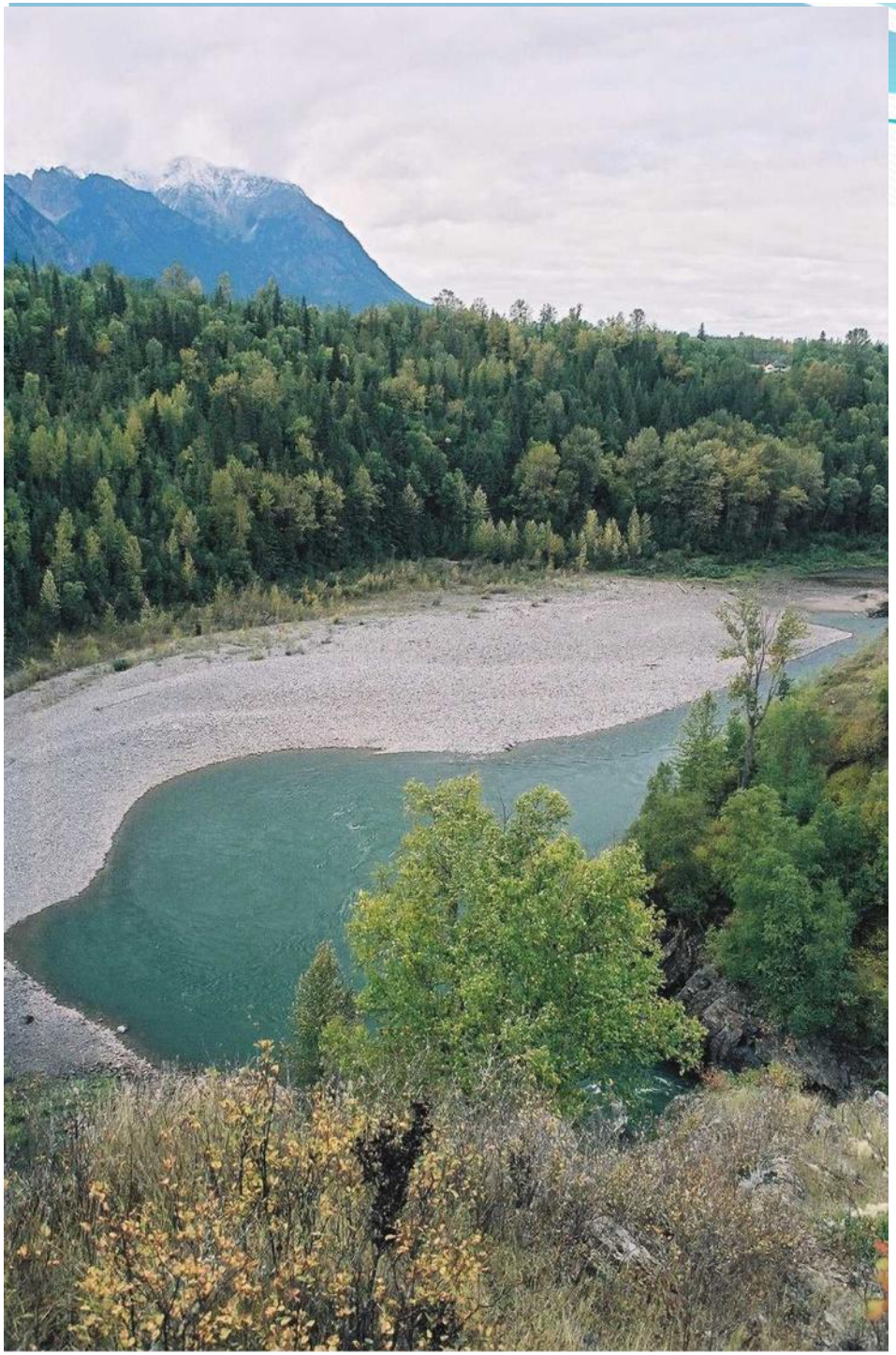


Wells regulated under the WSA

- Water supply;
- Monitoring wells;
- Recharge / injection wells;
- Dewatering / drainage wells;
- Remediation wells;
- Geotechnical wells (boreholes and test pits);
- Closed-loop geoexchange wells (new class of well);

Except:

- High temperature geothermal wells;
- Oil and gas wells;
- Mineral exploration holes;
- Waste disposal wells;
- Ditches, building drains, seismic relief holes.



Alternative Specifications

- In the current GWPR, a P.Eng. or P.Geo. can implement alternative specifications (e.g., decommissioning a well).
- Propose in GWPR2 that any alternative specifications must be submitted by the professional to an engineer for acceptance.

Registration of drillers & pump installers

Current GWPR	Propose
Qualifications for Registration: • BC Water Well Driller (ITA) • BC Well Pump Installer (ITA) • Equivalent from other prov / territory • CGWA	**All current qualifications plus:** • BC Geotechnical / Environmental Driller (ITA) • BC Geoexchange Driller (ITA)
Drillers can drill all classes of wells and install pumps	**New** drillers' activities restricted according to qualification / class of driller

Proposed qualifications for activities

	Water well driller	Geotech / env driller	GX driller	Well pump installer
Water supply well	✓			
Monitoring well	✓	✓		
Recharge/injection well	✓			
Dewatering well	✓			
Remediation well	✓	✓		
Geotechnical well	✓	✓		
Closed-loop geoexchange well			✓	
Well pump in water supply, injection or dewatering well	✓			✓

Note: Currently registered drillers continue to be permitted to drill any class of well and install pumps.

WSA - Controlling Artesian Flow

- WSA requirements for stopping / controlling artesian flow:
  - encountered during well construction, and
  - from existing wells.
- Artesian flow may be managed in accordance with directions of a decision maker, if:
  - Due to exceptional circumstances it is not practicable to bring artesian flow under control, and
  - The artesian flow can be managed without posing a threat to property, public safety or the environment.

WME2 Need a photo or graphic.
Wei, Mike ENV:EX, 2015-11-02

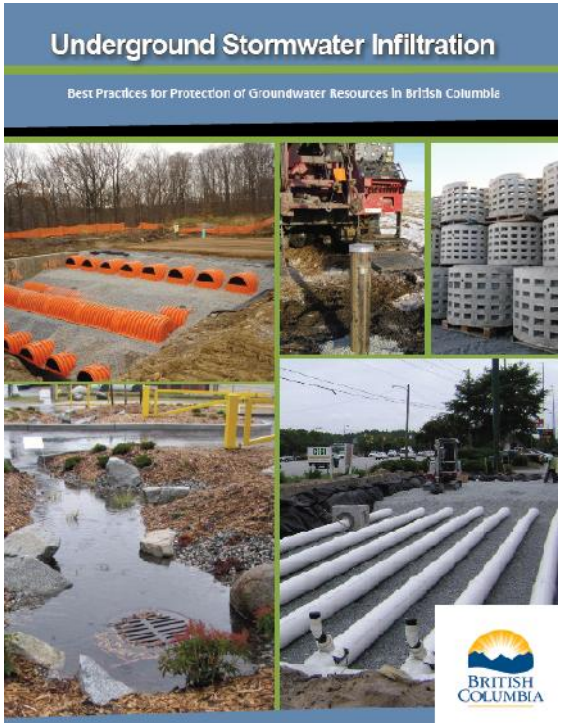
Proposed GWPR2 – Flowing Artesian Wells

- The person responsible for stopping or controlling the flow of a flowing artesian well must:
  - Equip the wellhead in a manner to prevent backflow into the well
  - Measure the shut-in pressure or static water level and record it on the well construction report
- The owner of a flowing artesian well must
  - protect and maintain any equipment installed to control the flow or prevent backflow
- Proposed to require well construction reports and well decommission reports for all flowing artesian wells, regardless of the class of the well.

Proposed well siting – wells that divert water

- A new water supply or permanent dewatering well must be >15m away from an existing water supply well; setback would not apply where an existing well is not in use.
- Purpose: minimize risk of excessive well interference (particularly domestic wells).
- The owner of an existing water supply well can drill one additional well within 15 metres of the existing well.
- If not feasible to meet siting requirements, a professional can recommend an alternative setback distance that is acceptable to the engineer.

Proposed well siting – wells for infiltrating urban runoff to ground



- A professional must:

  1) design a recharge / injection well for infiltrating urban runoff to ground so that the point of infiltration is above the water table at all times, and

  2) specify the horizontal distance of the well from other existing water supply wells

  so that the recharge / injection well does not adversely affect the quality of water diverted from those other water supply wells.

- Complements guidance: *Underground Stormwater Infiltration - Best Practices for Protection of Groundwater Resources in British Columbia.*

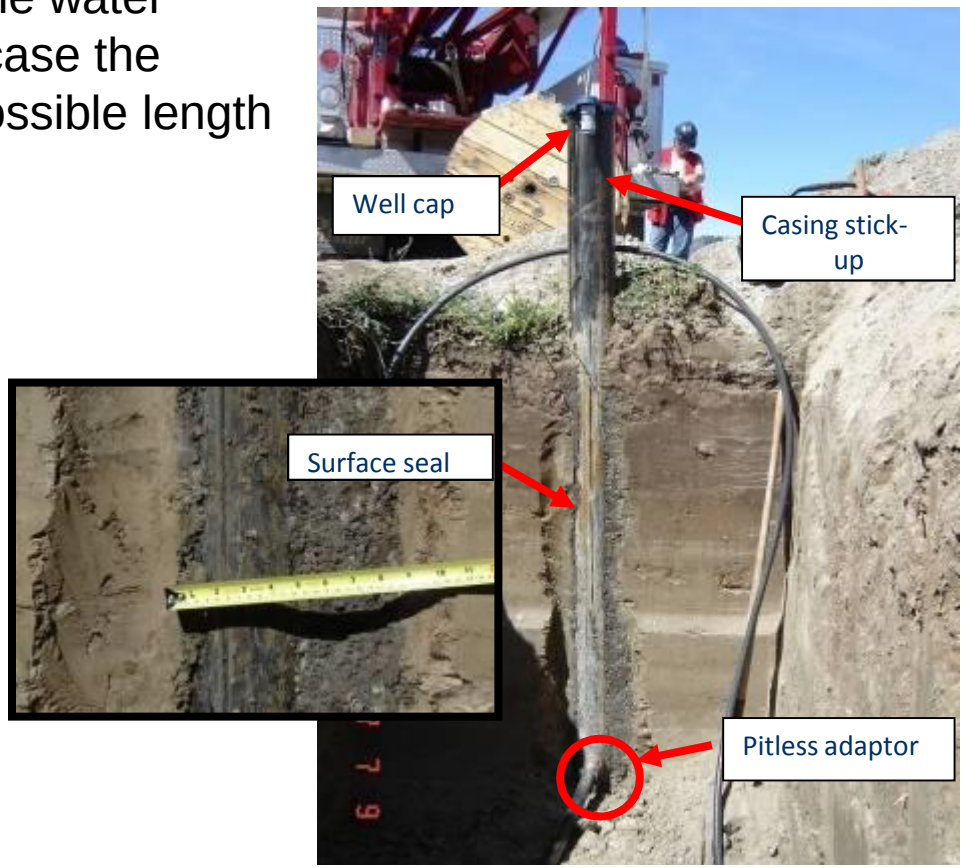
Proposed thermoplastic casings, liners, & sounding tubes

Thermoplastic casings, liners, sounding tubes in water supply wells must be certified for use for drinking water by:

- Canadian Standards Association;
- Underwriters' Laboratories of Canada;
- American Standards Testing and Materials;
- National Sanitation Foundation.

Proposed requirements for surface seals

- All new wells with a casing require a surface seal not less than 1 m in length and 2.54 cm in thickness.
- A new water supply well requires a surface seal not less than 5 m in length, unless the water supply well is too shallow, in which case the surface seal must be the greatest possible length up to 5 m.
- A water supply that is altered that does not have a surface seal must have a minimum 1 m length surface seal.
- New closed-loop geoexchange wells require that a seal is installed along the entire length of the ground loop from the bottom upward.



Proposed requirements for developing, yield testing & disinfecting wells

- Developing a water supply well must not cause significant collapse of the ground near the well nor damage to the surface seal.
- The well driller drilling or altering a well in unconsolidated sediments must install a screen; however, open bottom completions are acceptable if the bottom can be developed to be stable.
- The well driller must perform a well yield test on a water supply well or permanent dewatering well after drilling or alteration.

Proposed requirements for well pits

- A person must not construct a well pit for a new or altered water supply well, unless the well pit is:
  - Designed by a professional;
  - Designed so water that enters the well pit does not pond in the well pit and is conveyed away; and
  - Constructed under the supervision of the professional;
- The design & as-built drawings be submitted to the comptroller.

Photo by L. Lyons

Existing requirements

The following requirements remain essentially unchanged:

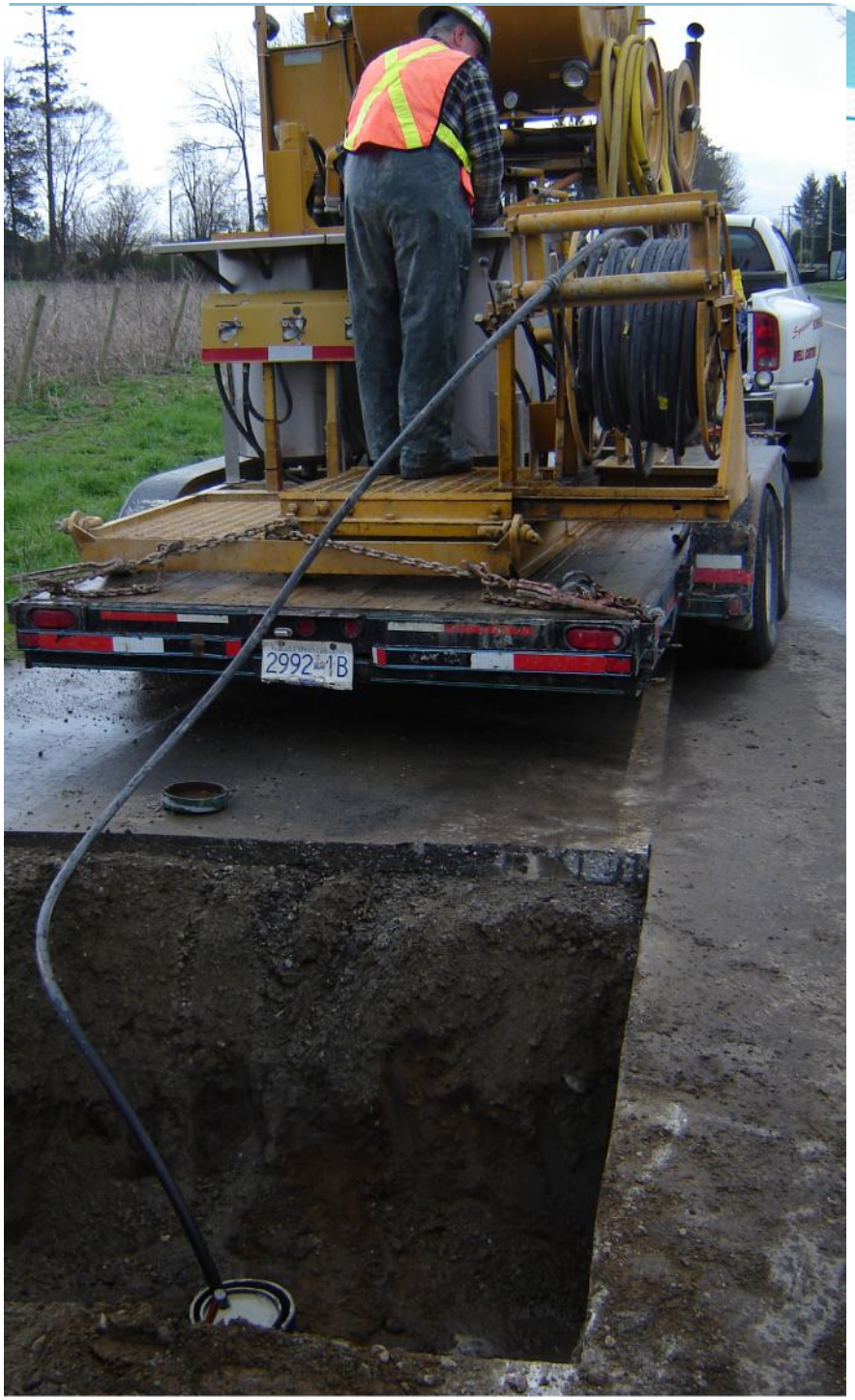
- Well identification
- Casing stick-up
- Caps and covers
- Mounding around the wellhead
- Flood-proofing a water supply system well
- Protection of thermoplastic casing
- Conveyance of water away from the well pit, well sump or pump house

Proposed minimum well pump standards

- Well pump installation must not cause movement of the casing.
- Requirements for installing pitless adaptors (e.g., water tight seal, prevent corrosion of different metals), and backflow prevention (permanent well pumps).
- Requirement to repair surface seal.
- Hand pumps must meet all requirements of a well cap.
- Existing water supply wells equipped with a hand pump that do not meet the requirements will have 2 years to ensure that the hand pump is upgraded or replaced so that it meets the requirements.

Proposed Well Maintenance Requirements

- Prohibiting storage of “s. 59 junk” within 3 m of the wellhead of a water supply well, or allow any “s. 59 junk” to travel to within 3 m of the well.
- Protecting equipment installed to control artesian flow.
- Protecting the sounding tube in a well.
- Maintaining clear, safe access to the well.

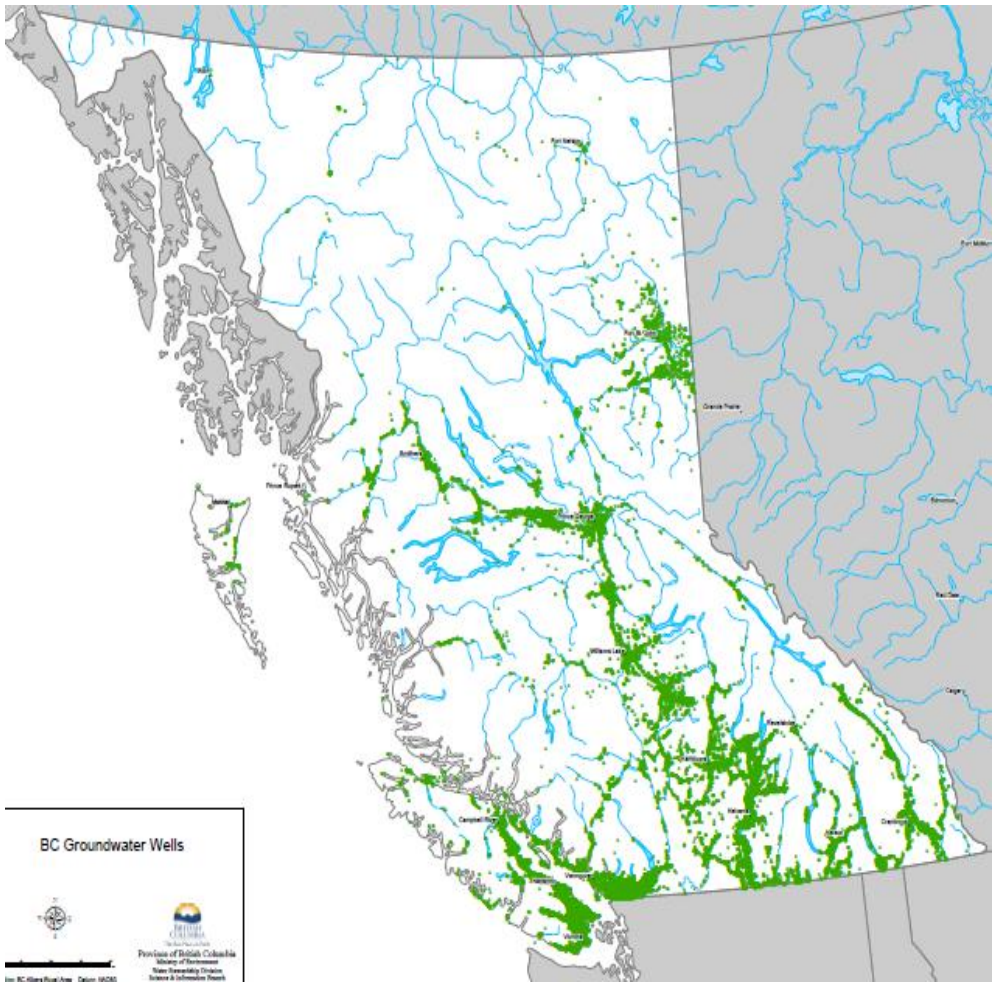


Well deactivation and decommissioning

- The proposed period for a well to be deactivated or decommissioned is 5 years.
- The WSA allows the comptroller or water manager to extend this period.
- Propose deactivation to include disabling the pump (shutting off the power or disconnecting a manual well pump).

Proposed Well Reporting Requirements

In general, proposing to keep many of the same reporting requirements as well as requiring:



- Wells that require a closure report to be submitted would also require a construction report to be submitted.
- Geoexchange wells would require one construction report per system submitted to the comptroller (all reports submitted to the owner).
- All reports related to flowing artesian wells to be submitted to the comptroller.

Thank you! Questions?

www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/

http://engage.gov.bc.ca/watersustainabilityact/

livingwatersmart@gov.bc.ca